

## REMARKS

Claims 1-16 are all the claims pending in the application. The Examiner rejects claims 1-16 under 35 U.S.C. §103(a) as being unpatentable over Ueyanagi (US 6,700,856) in view of Hatano (US 6,940,803).

### § 103(a) Rejection

Claims 1-16 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ueyanagi in view of Hatano. To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *See*, MPEP 2143.

### Claims 1 and 10

A previously argued in the Applicant's response to the Office Action dated March 5, 2008, Ueyanagi is directed to an optical head for recording and reading optical data such as may be found on an optical storage disk. As part of the optical head, Ueyanagi discloses a "transparent condensing medium", wherein the condensing medium is a portion of a sphere (Fig. 1A, Fig. 3A, Fig. 6, and Fig. 9A), flat (Fig. 7) or parabola (Fig. 7A and Fig. 10). In contrast, the present application discloses a solid immersion lens having an ellipsoid shape. This argument was persuasive, and the Examiner cited Hatano for disclosing a reflection conversion optical system having an elliptical surface in the present Office Action.

A feature of an ellipsoid immersion lens is that light passing through one of the two focal points will be reflected to the other focal point. Ueyanagi discloses only parabolic or spherical lens, and therefore each of Ueyanagi's lenses have but a single focal point. This feature is evident when examining Figs. 9A and 10A, in which incident light is directed into a lens and the light is focused to a particular point.

Hatano is directed to an optical system having a first and a second reflective surface and a solid immersion lens, wherein the light is gathered by the first reflective surface and reflected to the second reflective surface. At the second reflective surface, the light is then focused on output surface of the immersion lens. Different reflective conditions are shown in the figures related to the various embodiments, however, each of Hatano's embodiments also has but a single focal point. Although Hatano teaches that at least one reflective surface may be elliptical, Hatano does not teach that the light is incident at one of the two foci of the elliptical surface, and further, Hatano, does not teach the relation of the first focus to the incident light.

The present invention is an immersion lens comprising a solid ellipsoid segment having a first reflecting surface and a second reflecting surface wherein the second reflecting surface is elliptical. The first reflecting surface reflects light from a "plane of incidence" to the second surface. The "plane of incidence" is formed at "the same position as a point symmetrical to [] a different focal point" and therefore has a point symmetrical to one of the two focal points of the second reflecting surface thereon. Any light incident on the "plane of incidence" would be reflected by the first and the second reflecting surfaces as if the light originated at one of the two focal points. *See*, Application, page 9, lines 20-23. This makes use of an inherent property of an ellipse: light from one of the two focal points of an ellipse will be focused on the other focal point of the ellipse. As shown in Figs. 4A&B, 5, 6, and 7 of the Application, light L is incident on a point symmetrical to one of the two focal points s1, reflected by the first reflecting surface s2 to the elliptical second reflecting surface s3, and is focused on the other focal point P.

Neither Ueyanagi nor Hatano teach a second focal point, or a point symmetrical to the second focal point resulting in a "plane of incidence on which a light generated from a light source is made incident" as required by claims 1 and 10. Therefore, Ueyanagi and Hatano fail to teach all the limitations of claims 1 and 10. Further, if Ueyanagi and Hatano were combined, which Applicant asserts they cannot be, Ueyanagi's lens would have an ellipsoidal surface and any light entering the surface 6a could not form a focused spot on the central part of the under side of the lens. Therefore the combination of Ueyanagi and Hatano would fail to focus the light.

Ueyanagi and Hatano, alone or in combination, fail to teach a lens system comprising a plane of incidence, a first reflection side, and a second reflection side wherein the second

reflection side being formed to be an ellipsoid as required by claims 1 and 10. Further, there cannot be a reasonable expectation of success if Ueyanagi and Hatano were combined because the combination of Ueyanagi and Hatano would fail to focus the beam of incident light at a focal point of an ellipsoid. For at least these reasons, Applicant asserts that a *prima facie* case for obviousness has not been made and claims 1 and 10 are allowable. Applicant respectfully requests reconsideration in view of the above arguments, and early allowance of the independent claims.

Claims 2-9 and 11-16

Claims 2-9 and 11-16 are dependent from allowable independent claims 1 and 10 respectively, and for at least this reason are also allowable. Applicant respectfully request reconsideration and withdrawal of the rejections.

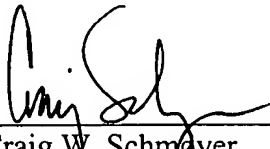
### CONCLUSION

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,  
Lee, Hong, Degerman, Kang & Schmadeka

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